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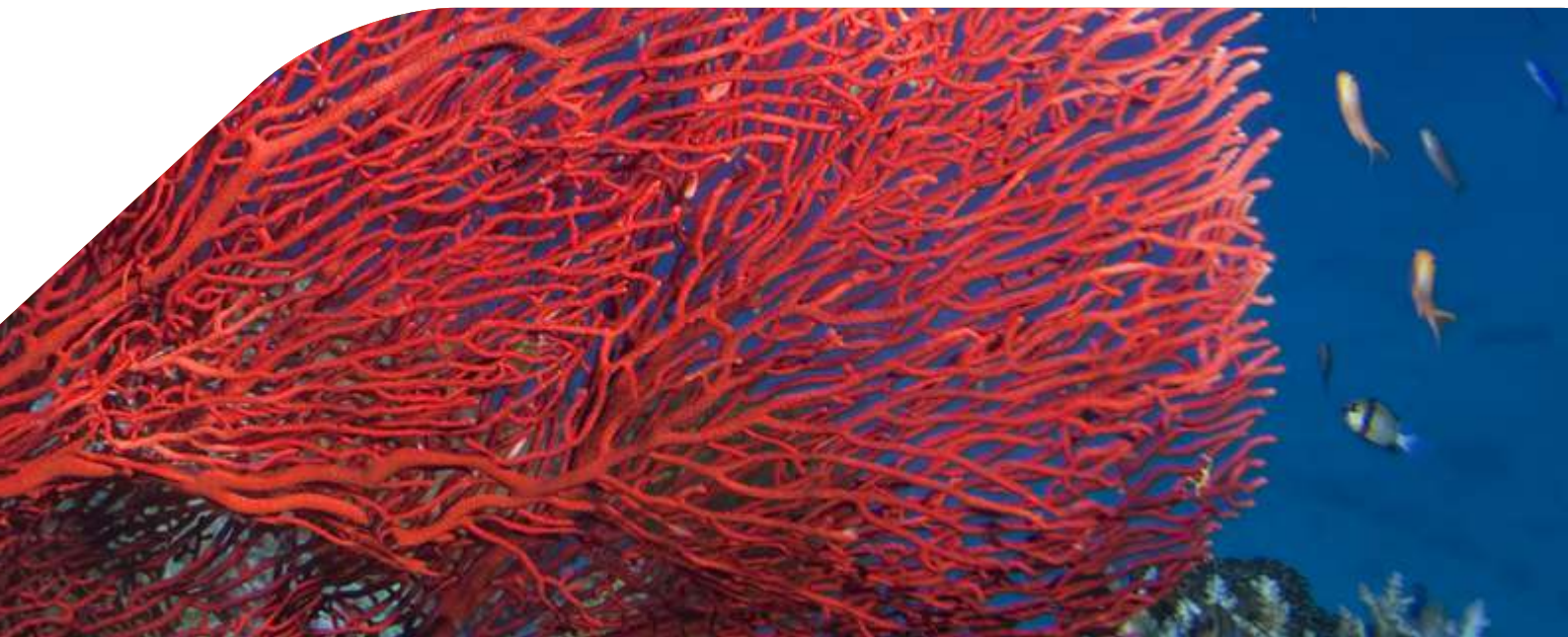**EXPERIENCES FROM PILOT STUDIES IN MEASURING THE SUSTAINABILITY OF TOURISM**

A SYNOPSIS FOR POLICY MAKERS

INDEX

INTRODUCTION

**EXPERIENCES FROM PILOT STUDIES
IN MEASURING THE SUSTAINABILITY
OF TOURISM**

A SYNOPSIS FOR POLICY MAKERS

WHAT IS MST?

UNWTO, in collaboration with the UN Statistics Division, is propelling the development of the MST (Measuring the Sustainability of Tourism) program[1] to provide all countries in the world with a common framework to measure the impacts and contributions of tourism on the economy, society and the environment.

The Statistical Framework for MST (SF-MST) is a valuable guiding tool for countries to produce credible, comparable and integrated data to better guide decisions and policy with respect to sustainable tourism. It is recognized by the UN Statistical Commission[2] as the main tool to monitor the contribution of tourism to the Sustainable Development Goals. It can be used to derive specific indicators for this purpose at the global, national and

sub-national levels. The SF-MST aims to become the third international standard on tourism after the International Recommendations for Tourism Statistics and the Tourism Satellite Account: Recommended Methodological Framework.

The MST program goes beyond the development of the SF-MST. A Working Group of experts representing 24 countries from all global regions and from more than ten organizations representing the international statistical and tourism communities and academia, has been tasked with not only developing the framework but also advancing its implementation. This Working Group reports to the UNWTO Committee on Statistics.

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1   More information at: **https://www.unwto.org/Measuring-Sustainability-Tourism**
2   The United Nations Statistical Commission is the highest body of the global statistical system bringing together the Chief Statisticians from member states from around the world. It is the highest decision making body for international statistical activities, responsible for setting of statistical standards and the development of concepts and methods, including their implementation at the national and international level.

WHAT ARE THE MST PILOT STUDIES?

One of the main means of advancing the implementation of the framework is through pilot projects in countries or destinations. These are key to testing the framework for MST on the ground. They will help produce specific policy-related questions from authorities, while also allowing them to provide feedback on the framework with critical information for its improvement.

As of August 2020, a total of 11 MST pilot studies have been conducted in the following countries: Austria, Canada, Fiji, Germany, Italy, Mexico, Netherlands, Philippines, Saudi Arabia, Sweden and Thailand. In addition, Samoa and Vietnam have undertaken projects aimed at measuring the sustainability of tourism using tools that are in line with the SF-MST.

This publication presents the work conducted by some of these countries, with a focus on the results obtained and the policy implications of the studies. These initiatives respond to specific relevant questions from the policy perspective. In many cases, they were developed through collaboration between the tourism statistics and policy communities. They are excellent examples of cooperation within a country and highlight what can be achieved in relation to measuring the sustainability of tourism.

This document covers 11 of the 13 available MST pilot studies and related initiatives. The following studies are included:

- Austria: A pilot study that culminated in a Master-plan in Tourism

- Fiji: A roadmap to measuring the sustainability of tourism

- Germany: A new "Tourism-Sustainability Satellite Account" (TSSA)

- Italy: Measuring the impact of tourism-related air emissions

- Mexico: Identifying areas of influence for measuring the sustainability of tourism

- Philippines: Estimating water and energy consumption in tourism

- Samoa: An extended TSA pilot exercise

- Saudi Arabia: Estimating the environmental effects of tourism

- Sweden: A method for estimating GHG emissions in tourism

- Thailand: A regional pilot that resulted in a National TSA-SEEA System of Accounts

- Vietnam: Land-based pollution in the Quang Ninh province

The main goal of this publication is two-fold: a) to showcase the excellent work conducted by pilot countries in advancing the implementation of MST, and b) to encourage other countries and destinations to join this important effort. If interested in becoming an MST pilot, please contact the UNWTO's Statistics Department at sttc@unwto.org.

THE IMPACT OF COVID-19 ON MST

In the face of the health pandemic, and as tourism restarts with sustainability as the new normal, being able to properly measure the sustainability of the sector has become even more essential for monitoring relevant policies. The SF-MST is the main international tool for this end, and its implementation should no longer be regarded as a just long-term objective.

UNWTO has asked MST pilot countries to indicate how COVID-19 has impacted the key priority of developing data for sustainable tourism policy. Out of eight responding countries, three indicated that this had become more important, while two indicated that it was now less important (the remaining three indicated the priority level remained unchanged).

Needless to say, these are countries that have taken part in MST pilot studies and, as a result, already identify data for sustainable tourism as an important need. However, changes in resource allocation prompted by the pandemic, and related changes in short-term priorities in terms of tourism related data, may have resulted in some countries placing reduced importance on the measurement of the social and environmental impacts of tourism. While understandable in the short-term, it is important that it does not continue into the medium and long terms. The support of the tourism policy community is vital in this regard.
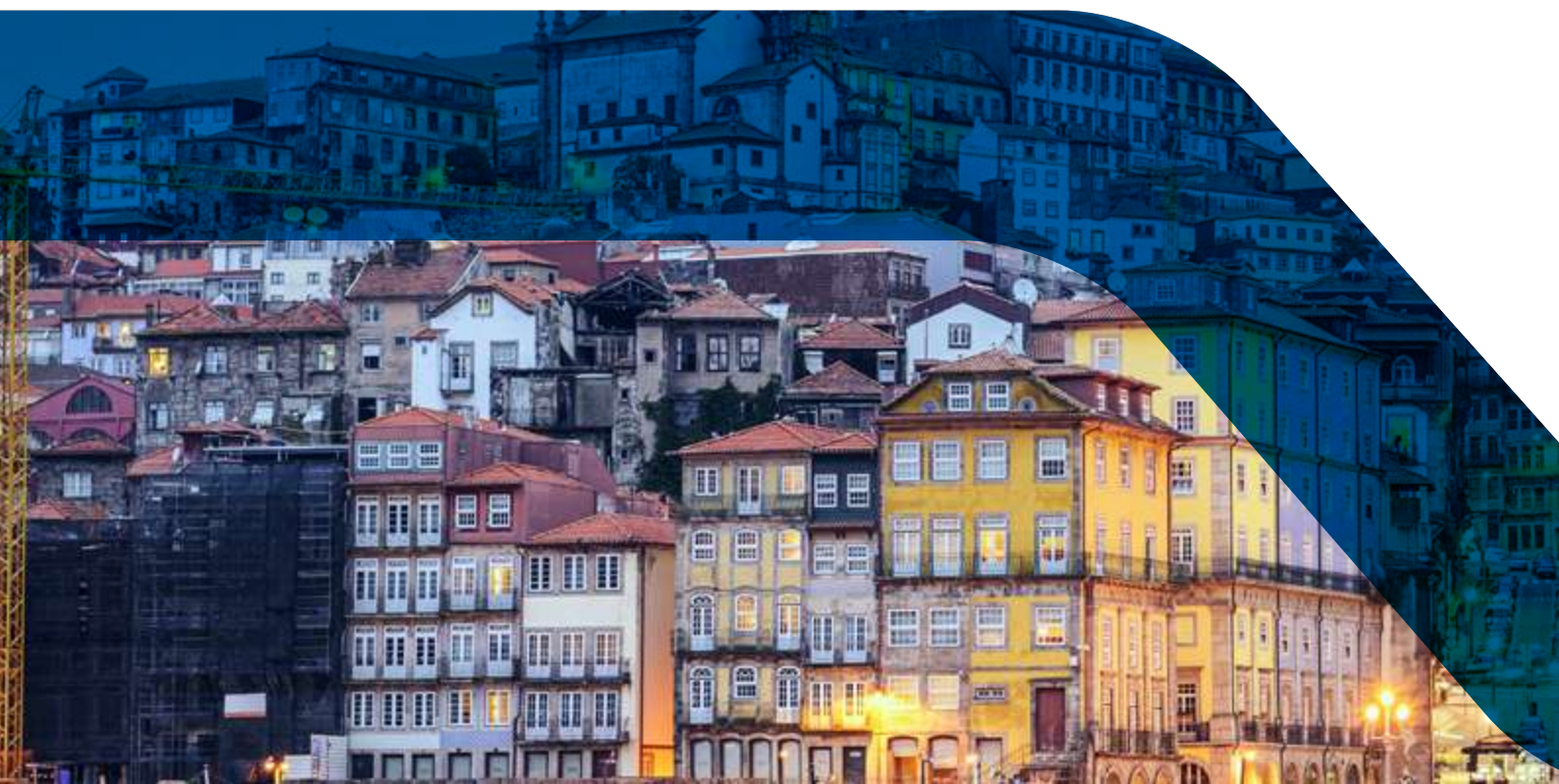
MAIN CHALLENGES FACED BY PILOT STUDIES

Nine of the countries participating in this publication also provided additional information on the pilot studies through a brief questionnaire. The pilots were self-funded by the institutions leading them in the majority of the cases, specifically in six of the nine responding countries. The remaining three were either funded by international organizations or by another national body.

In this context, funding seems to be an important challenge faced by countries in advancing the implementation of the MST. Six of the nine responding countries reported lack of funds as one of the main challenges they have faced in furthering the development of data for sustainable tourism policy.

The second most commonly mentioned challenge is the lack of support or interest from the policy community, with four countries identifying this as a relevant factor. Initiatives such as this publication aim to raise the profile and visibility within the tourism policy community of the efforts that the tourism statistical community, often jointly with other stakeholders, is doing on developing trustworthy measurement system for smart tourism management. It is important that the results are shared and communicated properly to ensure that this work is supported at all levels and by all relevant stakeholders.

Finally, another important challenge mentioned by pilot countries is the lack of methodological guidance and technical skills. This underlines the need for the development of the MST statistical framework. In addition, it reinforces the suitability of a progressive approach whereby lessons from pilots are incrementally incorporated into the SF-MST to ensure it is both technically feasible and policy relevant. Finally, this finding points to the pivotal role that regional and international capacity development and technical cooperation will play in having better data for more sustainable tourism.

ACKNOWLEDGEMENTS

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AUSTRIA

AUSTRIA: **A PILOT STUDY THAT CULMINATED IN A MASTERPLAN IN TOURISM**

A target oriented tourism policy requires instruments which provie a comprehensive picture and go beyond physical indicators such as overnight stays and arrivals. Within the new Austrian "Plan T - Master Plan for Tourism" – elaborated in 2018/19 by the main stakeholders of the Austrian tourism sector under the supervision of the "Federal Ministry of Agriculture, Regions and Tourism" (BMLRT) – a new set of indicators has been proposed, covering the economic, social and ecological dimension of tourism. The Pilot Study, conducted in 2016, focusing on different aspects and dimensions of tourism in Austria, was a valuable starting point for technical discussions towards those indicators being finally taken into account.

THE FINAL RESULT:
A SET OF MAIN INDICATORS IDENTIFIED WITHIN AUSTRIA´S MASTER PLAN FOR TOURISM

FUTURE ORIENTED SYSTEM OF INDICATORS

VALUE-ADDED
SOURCE: TSA

REVENUE PER AVAILABLE ROOM
SOURCE: OHT

SHARE OF GDP
SOURCE: TSA

FICTICIOUS DEBT REPAYMENT PERIOD
SOURCE: OHT

TOURISM EXPENSES
SOURCE: TSA

ARRIVALS
SOURCE: STATISTICS AUSTRIA

SHARE OF RENEWABLE SOURCE OF ENERGY IN GASTRONOMY
SOURCE: STATISTICS AUSTRIA

Ø EMPLOYMENT
SOURCE: TSA

SHARE OF RENEWABLE SOURCE OF ENERGY IN ACCOMODATION
SOURCE: STATISTICS AUSTRIA

GUEST SATISFACTION
SOURCE: T-MONA

OVERNIGHT STAYS
SOURCE: STATISTICS AUSTRIA

POLICY AIMS/CONTEXT OF THE PILOT

Aside from issues of supply, attracting tourists mainly depends on being able to intact and unsoiled nature, picturesque landscapes and a resident population that supports local tourism developments. Therefore, maintaining the high quality of natural and social environments is one of the most important production factors of tourism sector. Tourists want to visit attractive and unpolluted places; this is one of the main reasons many people travel. The work presented here is aimed at establishing a specific set of indicators that will be used to monitor the implementation of Austria's "Plan T – Master Plan for Tourism" taking into account the economic, social and environmental dependencies, and also the impacts of tourism development.

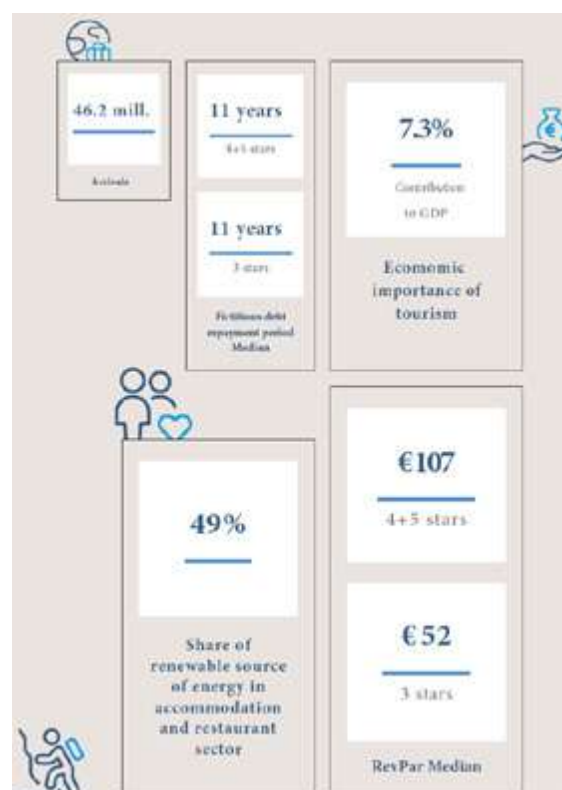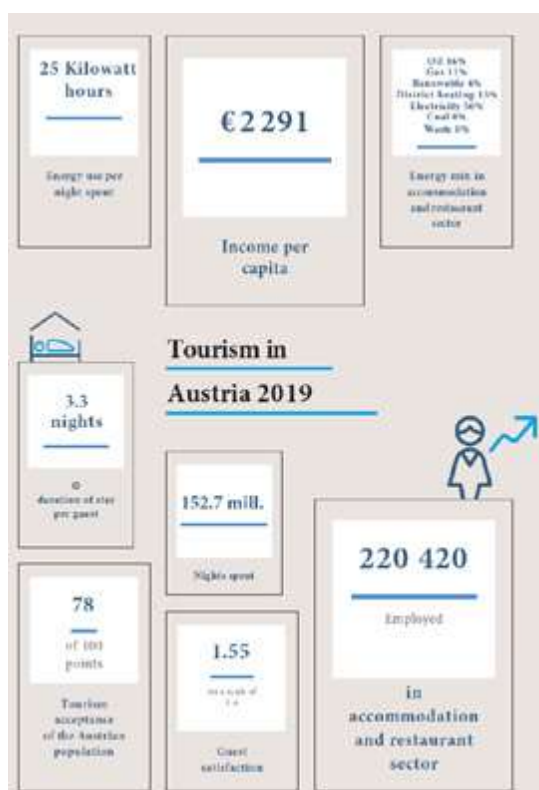| PILOT FOCUSED ON:	PILOT FOCUSED ON THIS SPATIAL LEVEL:
✔ Economic dimension	✔ National
✔ Social dimension, incl. culture & institutions	✔ Subnational region
✔ Environmental dimension	Municipality or location

KEY DATA GENERATED

KEY FINDINGS

Considering the **economic** dimension of Austrian tourism, in 2018 and 2019 tourism activity in Austria accounted for 7.3% of total GDP (direct and indirect contribution)s, or 28.3 and 29.2 billion EUR respectively. The Revenue Per Available Room has remained stable over the last five years for 3-star hotel establishments, but has shown a notable increase for 4-5-star hotels, from 140 EUR in 2014 to 175 EUR in 2019.

Taking into account the **environmental** aspect, in 2017 the Austrian tourism sector accounted for 1.15% of total Austrian final **energy consumption**. In the accommodation and restaurant sector electricity accounted for more than half of all energy consumption The share of renewable energy sources in accommodation and restaurant sector amounted to 49%, an increase of 16 percentage points when compared to 2008.

In order to collect more information about the **social** impact of the sector, in January 2020, public perceptions of tourism among resident populations was surveyed for the first time in Austria. The tourism perception index amounted to 78 points on a scale from 0 to 100. The calculation of the index is based on four factors, including personal opinions about tourism in Austria, personal overall impressions of tourism in Austria, the assessment of the importance of tourism for Austria and personal identification with tourism in Austria.

POLICY ACTION

In 2018/19 the new "Plan T – Masterplan for Tourism" for Austria was elaborated by the main stakeholders of the Austrian tourism sector under the supervision of the BMLRT. One part concerned the preparation of selected indicators related to the measurement of the economic, social and ecological dimension of tourism. Also based on the conclusions drawn out of the Pilot Survey of 2016, a proposed set of indicators was presented within the framework of a workshop in November 2018 where all the main stakeholders took part. The outcome was summarized, and selected indicators were taken into account as part of the "Plan T – Masterplan for Tourism". The relevant data was then published within the yearly and newly revised Report "Tourism in Austria 2019" produced by BMLRT, and will continue to be published on a yearly basis.

ORGANIZATION

Year(s) the pilot study was carried out in: 2016 (pilot study), 2018/19 (Masterplan)
Lead institution(s): Statistics Austria

Other institution(s) involved: BMLRT and main stakeholders of the Austrian tourism industry
Focal point: Peter Laimer

LINKS TO MORE INFORMATION

- "Plan T – Masterplan for Tourism": https://www.bmlrt.gv.at/dam/jcr:885af4cc-c3bf-4960-9ee8-be930e6010f5/PLAN%20T%20-%20MASTER%20PLAN%20FOR%20TOURISM_Print_barrierefrei.pdf
- Report "Tourism in Austria 2019" (in German only): https://www.bmlrt.gv.at/dam/jcr:124f45aa-dc53-4ab0-b7d5-7f5950b43cf8/TOURISMUSBERICHT%202019_final_barrierefrei.pdf
- Tourism Statistics (Statistics Austria): http://www.statistik.at/web_en/statistics/Economy/tourism/index.html
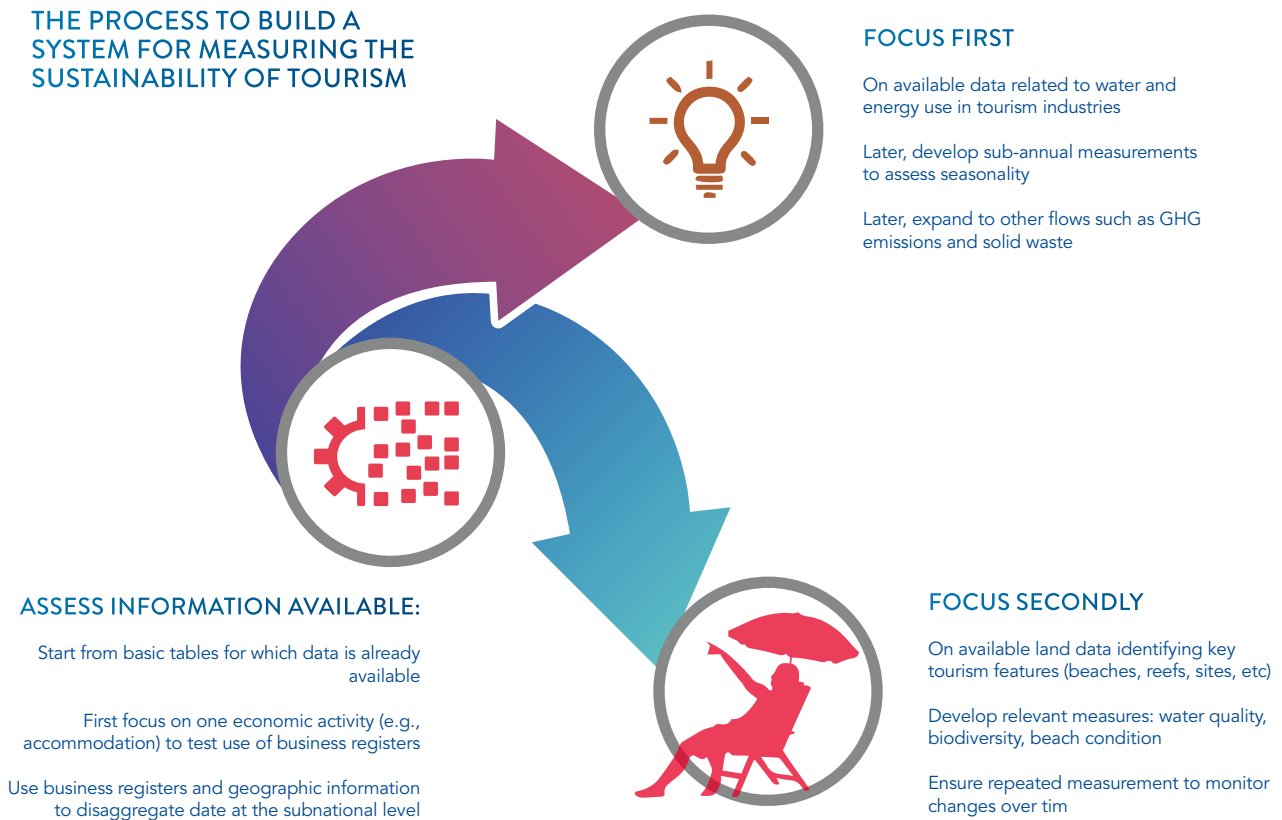
FIJI

FIJI: **A ROADMAP TO MEASURING THE SUSTAINABILITY OF TOURISM**

In order to expand the traditional measurements of tourism, such as expenditure and tourism yield, a feasibility study was conducted in Fiji to evaluate the expansion to indicators and tables that take into account the sustainability of tourism in its three dimensions.

This is crucial in support of the development of a sustinabile and inclusive tourism sector via the marketing of the Fijian brand, investment in infrastructure and support of medium and small enterprises.

THE PROCESS TO BUILD A SYSTEM FOR MEASURING THE SUSTAINABILITY OF TOURISM

FOCUS FIRST

On available data related to water and energy use in tourism industries

Later, develop sub-annual measurements to assess seasonality

Later, expand to other flows such as GHG emissions and solid waste

ASSESS INFORMATION AVAILABLE:

Start from basic tables for which data is already available

First focus on one economic activity (e.g., accommodation) to test use of business registers

Use business registers and geographic information to disaggregate date at the subnational level

FOCUS SECONDLY

On available land data identifying key tourism features (beaches, reefs, sites, etc)

Develop relevant measures: water quality, biodiversity, beach condition

Ensure repeated measurement to monitor changes over tim

POLICY AIMS/CONTEXT OF THE PILOT

The main goal of the pilot is to design a roadmap to integrate Tourism Satellite Accounts with the SEEA Accounts (Water, Energy and Solid Waste Accounts to determine the impact of tourism on the environment and also the sustainability level of Tourism Activity in the Fijian economy.)

PILOT FOCUSED ON:	PILOT FOCUSED ON THIS SPATIAL LEVEL:
✔ Economic dimension	✔ National
✔ Social dimension, incl. culture & institutions	✔ Subnational region
✔ Environmental dimension	Municipality or location

KEY DATA GENERATED

Key MST variables table with Tourism industries (Accommodation**, Food and restuarants**, Transport, Road, Water**, Air, Rental cars**, Travel agents & tour operators**, Recreation**, Other industries, Total tourism) against columns: Output ($), Value added ($), Tourism industry ratio (%), Employment (# of people) [Total, Male, Female, Full time, Part time / Casual], Business size (# businesses) [Total, Small (<20 employ.), Medium (20-100 employ.), Large (>100 employ.)], Ownership [Fiji, Foreign], Environmental flows [Water use, Electricity use, Solid waste].

* The description of tourism industries follows the classes used in the Fijian TSA
** It is proposed that information for these industries is also compiled for the 11 Fiji tourism areas

Key MST variables table with Tourism areas (Denarau, Coral Coast, Nadi, Mamanuca, Yasawa, Suva, Pacific Harbour/Beqa/Kadavu, Lautoka, Vanua Levu, Suncoast, Outer islands and other, Total Fiji) against columns: Visitor numbers*, Visitor expenditure*, Accommodation [# businesses, # beds/rooms, occupancy rate, water use].

KEY FINDINGS

1. Using the tables above as a starting point, "first cut" MST data tables should be compiled using currently available information, including from the TSA and the business register. This work should encompass the compilation of time series of information, including at sub-annual level to assess seasonality.

2. Building on the first cut tables and using information from the business register, the location of tourism business and the associated characteristics should be developed to provide a richer picture of tourism activity in Fiji. In the short term, a focus on one tourism industry – e.g. accommodation – would be useful to test the potential to use the business register information. If successful, more permanent solutions to the geocoding of establishments on the business register could be developed. More broadly, efforts should be made to integrate a location perspective into other economic and social data – a particular focus here would be developing methods for estimating tourism output and associated variables by location.

3. To assess the environmental dimensions on sustainable tourism, the first focus should be on the collation of data on water use and electricity use by tourism industries. Where possible, potentially using connections to the business register, these measures should be developed for the various tourism areas. Where possible time series of these data should be compiled, including at sub-annual level to assess seasonality. Over time, these data should be integrated with information on water and energy for other industries and for both supply and use perspectives, i.e. in the framework of SEEA water and energy accounts. Other environmental flows to be developed should be estimates for solid waste and GHG emissions.

4. The second perspective on environmental data is land data. Here work should focus on mapping different land and marine areas according to different land cover and land use classes. This information should then be overlaid with information on key tourism features including reefs, beaches, national parks, heritage sites, golf course and hotels. Measurement of changes over time should be considered in the development of these data.

5. Using land maps as a starting point, measures of environmental condition or health can be developed for priority tourism areas using indicators of, for example, water quality, beach condition and biodiversity. Again, measurement of changes over time should be considered in the development of these data. Ultimately, the flows of ecosystem services from these areas would also be measured, in many cases using information from existing data sources, for example on number of visitors to national parks or beaches.

ORGANIZATION

Year(s) the pilot study was carried out in: 2016
Lead institution(s): Fiji Bureau of Statistics

Other institution(s) involved: UNWTO, UNESCAP and IDEEA
Focal point: Fiji Bureau of Statistics

LINKS TO MORE INFORMATION

https://www.statsfiji.gov.fj/images/documents/Economics_Statistics/Annual_Reports/Satellite-Accounts/Measuring_Sustainable_Toursim_Fiji.pdf
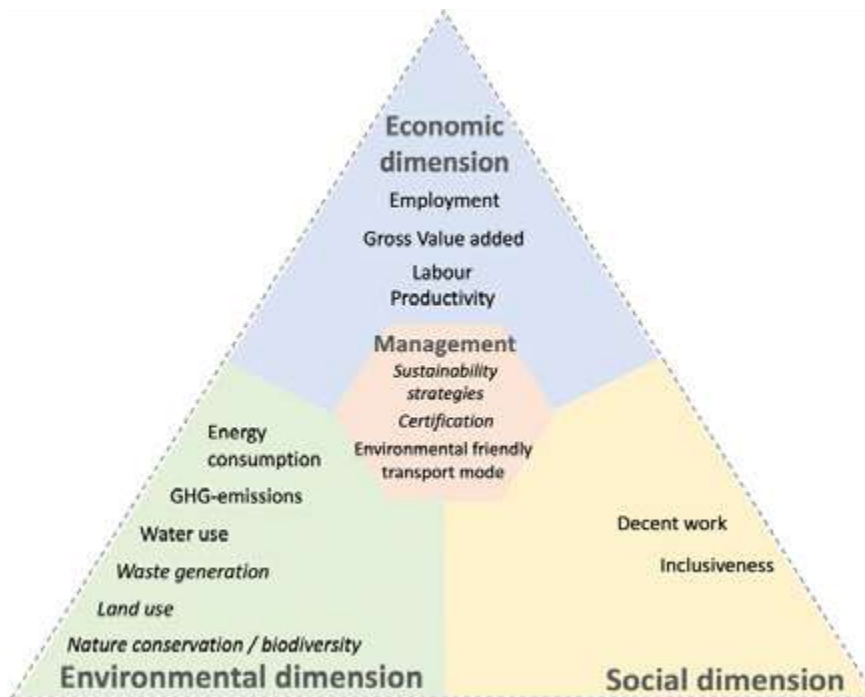
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GERMANY

GERMANY: A NEW "TOURISM-SUSTAINABILITY SATELLITE ACCOUNT" (TSSA)

A viable system has been developed to measure different sustainability-impacts of tourism in Germany. This so-called Tourism-Sustainability-Satellite Account is based on TSA-data combined with data of German Environmental-Economic Accounting. Additional social indicators focus on decent work and inclusiveness. The system allows a systematic allocation of impacts to different tourism-related economic sectors.

Economic dimension
- Employment
- Gross Value added
- Labour Productivity

Management
- Sustainability strategies
- Certification
- Environmental friendly transport mode

Environmental dimension
- Energy consumption
- GHG-emissions
- Water use
- Waste generation
- Land use
- Nature conservation / biodiversity

Social dimension
- Decent work
- Inclusiveness

POLICY AIMS/CONTEXT OF THE PILOT

How can a national evidence-based system be developed that provides empirical quantitative data about economic, environmental and social impacts of tourism industries in Germany? Can this data be linked to overall sustainable development goals? Where are the priority fields of action?

PILOT FOCUSED ON:		PILOT FOCUSED ON THIS SPATIAL LEVEL:
✔	Economic dimension	✔ National
✔	Social dimension, incl. culture & institutions	Subnational region
✔	Environmental dimension	Municipality or location

KEY DATA GENERATED

Indicator	Unit	Tourism total	German economy	Relation tourism and economy as a whole
Management				
Certification of sustainability performance	% (Destinations)	tbd		
Certification strategies	% (Destinations)	tbd		
Arrival with environmental friendly mode of transport				
Economic dimension				
Employment (2016)	Persons (in 1.000)	2.628	43.642	6,02%
Gross value added (2016)	billion EUR	111,77	2.847,74	3,93%
Labour productivity (2016)	EUR/Person	42.527	65.252	-34,83%
Environmental dimension				
Energy consumption (2015)	TJ	656.468	17.955.506	3,66%
Energy intensity (2015)	TJ/Million EUR	6,24	6,58	-5,18%
Greenhouse gas emissions (2015)	t CO_2-equivalencies	38.453.222	857.847.107	4,48%
Tourism specific CO_2-Emissions (2015)	Milion t CO_2	130,28	1.062,17	12,27%
GHG-intensity (2015)	t CO_{2e}/million EUR	365,34	314,27	16,25%
Water use (2015)	t m³	440.018	25.501.638	1,73%
Water intensity (2015)	t m³/ Million EUR	4,18	9,34	-55,25%
Waste generation				
Nature conservation and biodiversity				
Land use				
Noise pollution				
Social dimension				
Decent work (DGB)	Index	tbd	tbd	
Gender Pay Gap	% (earnings)	17,37	22,29	-22,08%
Low wage average	% (employees)	41,73	21,37	95,28%
Overlong working hours	% (persons employed)		10,00	
Involuntary time limit	% (limited contracts)		34,10	
Over- and underqualification	% persons employed)		86,03	
Participation denied due to poverty (2018)	% (population)	14,50		

Not applicable

Need for further research: data currently not available

KEY FINDINGS

In 2016, about 2.6 million people were employed in tourism in Germany, of which the largest share (1.5 million) was in the hospitality sector. Labor productivity in tourism is about one third lower compared to the overall share of the German economy as a whole. This is almost exclusively due to the situation in the hospitality industries, with low wages and many part-time workers.

Energy-use in tourism accounts for 3.7% of the German economy. Tourism's energy intensity, i.e. energy consumption in relation to value added, is slightly better than the national economic average, but with large deviations within the sub-sectors. The distribution of tourism-related greenhouse gas (GHG) emissions across economic sectors is similar to that of energy use, but with a higher share of transport related emissions. Tourism as a whole is slightly more emission-intensive than the average for the German economy with a share of 4.5% of total emissions.

Tourism-related water consumption counts for 1.7% of the German economy. Tourism in Germany is significantly less water intensive than the average of German economy. Within the tourism industries, water consumption is highest in the hospitality sector.

With regards to the social dimension of sustainability, several aspects of decent work have been evaluated. The difference in pay between men and women, the so-called gender pay gap, is lower in tourism when compared to the German economy as a whole, with a rate of 17.4%. The share of employment with low wages in the tourism industries is about twice as high when compared to the German economy as a whole, averaging 41.7%. Low wages are particularly widespread in the gastronomy and accommodation sector with 71.7% and 54.5% respectively.

POLICY ACTION

The overall indicator-system has been developed in a participatory way with different tourism stakeholders in Germany through a stakeholder-workshop. An international conference ont measuring the sustainability of tourism was held in 2019 with the presence of the German Federal Minister of Environment and the Executive Director of UNWTO. Also, the results were discussed in stakeholder workshop with a focus on how the project findings can be used by different interest groups. Additionally, eight different discussion papers have been produced that focus on specific topics and challenges of sustainability in tourism and are mostly produced as policy advice papers. A final report sums up the methodology and the results of the system.

The project will be extended for an additional year to update data and potentially extend the set of indicators computed.

ORGANIZATION

Year(s) the pilot study was carried out in: 2017-2020
Lead institution(s): Centre for Sustainable Development (ZENAT) at Eberswalde University for Sustainable Development
Other institution(s) involved: DIW-Econ, adelphi Consult, dwif Consulting GmbH, BTE Tourism- and Regional Consulting

Focal point: TSA, national accounts, environmental sustainability, regional case study, conference organization

LINKS TO MORE INFORMATION

- https://www.umweltbundesamt.de/publikationen/sustainability-in-tourism-developments-approaches
- https://www.umweltbundesamt.de/publikationen/measuring-sustainability-in-tourism-opportunities
- http://zenat-tourismus.de/index.php?option=com_content&view=category&layout=blog&id=56&Itemi-d=206&lang=en

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ITALY

ITALY: MEASURING THE IMPACT OF TOURISM-RELATED AIR EMISSIONS

In Italy, air and water transport services have high energy and emission intensity, particularly in terms of ground level ozone and acidification.

In contrast, accommodation and food services for internal tourism consumption have much lower energy and emission intensities. (reference year: 2015)

WHEN COMPARED WITH THE ECONOMY AS A WHOLE, FOR EVERY 1 BILLION EUROS OF OUTPUT PRODUCED, THE TOURISM SECTOR NEEDS TO:

USE 6% MORE ENERGY — + 6%

GENERATE 12% MORE GHG EMISSIONS — + 12%

GENERATE 188% MORE ACIDIFICATION — + 188%

GENERATE 210% MORE EMISSIONS THAT CAUSE GROUND OZONE LEVELS — + 210%

POLICY AIMS/CONTEXT OF THE PILOT

1. How many tons of air emissions - causing greenhouse effect, acidification[1] and ground level ozone[2] - are directly generated by the production of all tourism-related products for tourism consumption in Italy?

2. What is the energy intensity and emission intensity (for GHG, acidification and ground level ozone)

of tourism output (for tourism consumption in Italy)? Is it high or low compared to economic output as a whole?

3. Which services for internal tourism consumption have a particularly high emission and energy intensity? Which ones have a low energy and emission intensity?

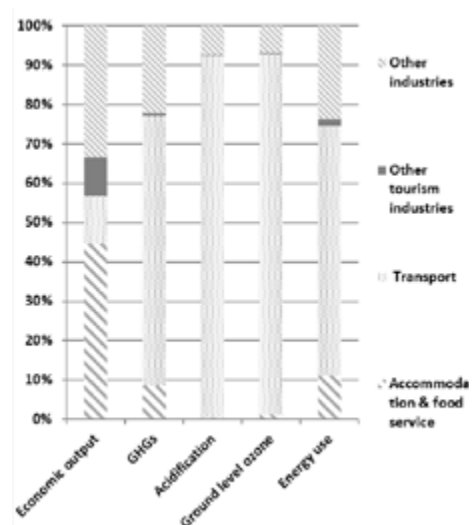| PILOT FOCUSED ON:		PILOT FOCUSED ON THIS SPATIAL LEVEL:	
✔	Economic dimension	✔	National
✔	Social dimension, incl. culture & institutions		Subnational region
✔	Environmental dimension		Municipality or location

KEY DATA GENERATED

ECONOMIC OUTPUT OF TOURISM CHARACTERISTIC PRODUCTS (FOR INTERNAL TOURISM CONSUMPTION) AND RELATED EMISSIONS AND ENERGY USE - ITALY - YEAR 2015 (PERCENTAGE OUT OF TOTAL ECONOMY)
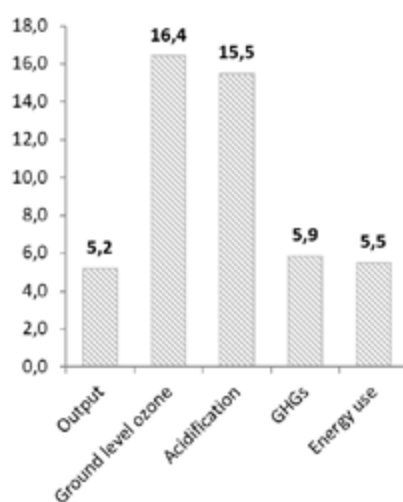
ENVIRONMENTAL PROFILE OF TOURISM INDUSTRIES AND OTHER INDUSTRIES ITALY - YEAR 2015

1 Acidification can lead to changes in the chemical composition of the soil and surface water.
2 Ground level ozone causes damaging effects on human health, agricultural cultivations and forestry as well as to historical-artistic heritage.

KEY FINDINGS

1. While tourism products for tourism consumption in Italy account for 5.2 per cent of total economy output in Italy (as of 2015); their production generates 16.4 per cent of total air emissions of ground level ozone, 15.5 per cent for acidification and 5.9 for GHGs and requires 5.5 per cent of total use of energy products by economic activities.

2. In terms of energy intensity (i.e. the ratio of energy use to output) and emission intensity (i.e. the ratio of emissions to output), for the three environmental issues, intensities are higher for tourism products than for the economy as a whole. Specifically, energy use and GHG emissions generated by tourism to produce one billion euros worth of output is about 6 and 12 per cent higher than for the economy as a whole respectively, while the generated acidification and ground ozone levels is about three times as much (188 and 210 per cent higher respectively) as for the whole economy.

3. The observed high level of emission and energy intensity of tourism products for internal tourism consumption, is due to the particularly high emission and energy intensities in the air and water transport services. However, it is worth highlighting that all other services that are typically consumed by visitors, like accommodation services and food services have much lower emission and energy intensities than the economy as a whole.

POLICY ACTION

Data on environmental pressures related to tourism industries were not circulated in a specific report addressed to policymakers. However, the main TSA results, as well as pilot estimates of environmental pressures related to tourism industries were included in the Istat Annual Report 2019, presented to policymakers: https://www.istat.it/it/archivio/230897 (Italian version only). After the first pilot study of environmental pressures related to tourism industries within the TSA-SEEA integrated framework, Istat is planning to repeat the exercise with every TSA exercise (approximately biennially) to the extent possible. Following the release of the Italian TSA for the year 2017, Istat is currently updating its estimates of environmental pressures related to tourism industries for the same year and plans to publish the results by the end of 2020. On the basis that a preliminary feasibility assessment is carried out, estimates could be extended to environmental taxes but no commitment is in place from Istat in this respect.

ORGANIZATION

Year(s) the pilot study was carried out in: 2018
Lead institution(s): Istat - Italian National statistical office
Other institution(s) involved: NONE
Focal point: Istat

LINKS TO MORE INFORMATION

- https://www.istat.it/en/archivio/228239
  Istat website– release of pilot estimates of environmental pressures related to tourism industries
  English version

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MEXICO

MEXICO: IDENTIFYING AREAS OF INFLUENCE FOR MEASURING THE SUSTAINABILITY OF TOURISM

There are three main identified ways in which tourism activity and the environment relate: the economic benefits from regulated tourism activity, the generation of environmental goods and services produced by the tourism sector, and the environmental impact of this activity. This pilot explores a methodology to identify polygons of influence to measure this relationship at the subnational level.

POLICY AIMS/CONTEXT OF THE PILOT

In order to identify the forms of sustainability in tourism, including those that can help provide information to build the indicators of SDGs Target 8.9, it is considered that the best way is through the measurement of the relationship between tourism activity and the environmental boundary (ecosystems). From here, this pilot identifies three relationships in principle, without necessarily being the only ones:

1. The economic benefits from regulated tourism activity, so that the environmental impacts are considered null or minimal.

2. The generation of environmental goods and services (in addition to green jobs) produced by the tourism sector, such as wastewater treatment by hotels and restaurants, the use of clean energy (solar collectors, photovoltaic cells, etc.), energy saving in establishments and transport, etc., and other activities considered in the Classification of Environmental Activities (CEA) and the Common International Classification of Ecosystem Services (CICES).

3. The environmental impact generated as polluting emissions to air, water and soil, as well as depletion of water, forests and mineral resources.

This pilot aims to establish a methodology to measure this relationship at subnational levels, for example Protected Natural Areas (PNA) or archaeological sites, through the elaboration of polygons of influence of economic activities. This will be used to compute Gross Value Added (GVA) and tourism employment, among other economic and environmental indicators. With this information it is possible to compare the maintenance costs of the site of interest, which lays the foundations for explaining the cost-maintenance relationship.

This is crucial to properly monitor the implementation of the General Tourism Law (Art 3 c) in Mexico, which seeks to "ensure the development of viable economic activities that provide socio-economic benefits, including employment and income-earning opportunities and social services for host communities, that contribute to improving living conditions"; among other policy question.

PILOT FOCUSED ON:		PILOT FOCUSED ON THIS SPATIAL LEVEL:	
✔	Economic dimension	✔	National
✔	Social dimension, incl. culture & institutions	✔	Subnational region
✔	Environmental dimension	✔	Municipality or location

KEY DATA GENERATED

ECONOMIC OUTPUT OF TOURISM CHARACTERISTIC
PRODUCTS (FOR INTERNAL TOURISM CONSUMPTION)
AND RELATED EMISSIONS AND ENERGY USE - ITALY -
YEAR 2015 (PERCENTAGE OUT OF TOTAL ECONOMY)

ENVIRONMENTAL PROFILE OF TOURISM INDUSTRIES
AND OTHER INDUSTRIES ITALY - YEAR 2015

Description	Number of establishments
Passenger transport	30
Restaurants, bars and night clubs	471
Accomodation	54
Travel agencies	14
Commerce	640
Cultural services	2
Sports and recreational services	42
Financial services	5
Information services	1
Real estate services	38
Professional services	5
Supporting services	3
Education services	2
Other services	51
TOTAL	**1,358**

NPA Polygon of influence
NPA Cozumel Reefs
GEBA₁
NPA: Natural Protected Area
GEBA₁: Tourism Geoestadistic Area

KEY FINDINGS

A total of 113 classes of tourist activity included the North American Industrial Classification System (NAICS) were identified. This allowed for the calculation of the number of establishments within the influence polygon. These results are hereby presented for the Natural Protected Area "Arrecifes Cozumel".

The identification of tourist activities through the revision of classifications can also be directly linked and associated with the Tourism Satellite Accounts, and therefore calculations of key indicators such as GVA and tourism employment can be achieved at this subnational level. In this process, it was found that the use of Establishment Directories / Registries is essential to link them with the economic activities of Protected Natural Areas and archaeological sites. In this sense, this exercise can be reproduced and updated more easily when there are updated Economic Censuses and Maps of Land Use.

POLICY ACTION

At the moment, these exercises and preliminary results have been presented in inter-institutional internal working groups.

ORGANIZATION

Year(s) the pilot study was carried out in: 2017
Lead institution(s): INEGI
Other institution(s) involved: Comisión Nacional de Áreas Naturales Protegidas;
Instituto Nacional de Antropología e Historia
Focal point: Francisco Guillén Martín/Raúl Figueroa Díaz

Measuring the Sustainability of Tourism

UNWTO
World Tourism Organization

PHILIPPINES

## PHILIPPINES: ESTIMATING WATER AND ENERGY CONSUMPTION IN TOURISM

Water and energy consumption from domestic tourism in the Philippines more than tripled between 2012 and 2019. Transport services account for more than three quarters of water and energy consumption of domestic tourism. Similarly, domestic tourism represents about 76 per cent of total consumption.

PROPORTION OF TOTAL EMPLOYMENT REPRESENTED BY TOURISM, 2019

13.5%
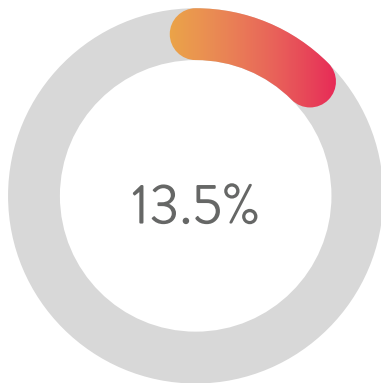
CONTRIBUTION OF TOURISM TO THE GROSS DOMESTIC PRODUCT 2019

12.7%
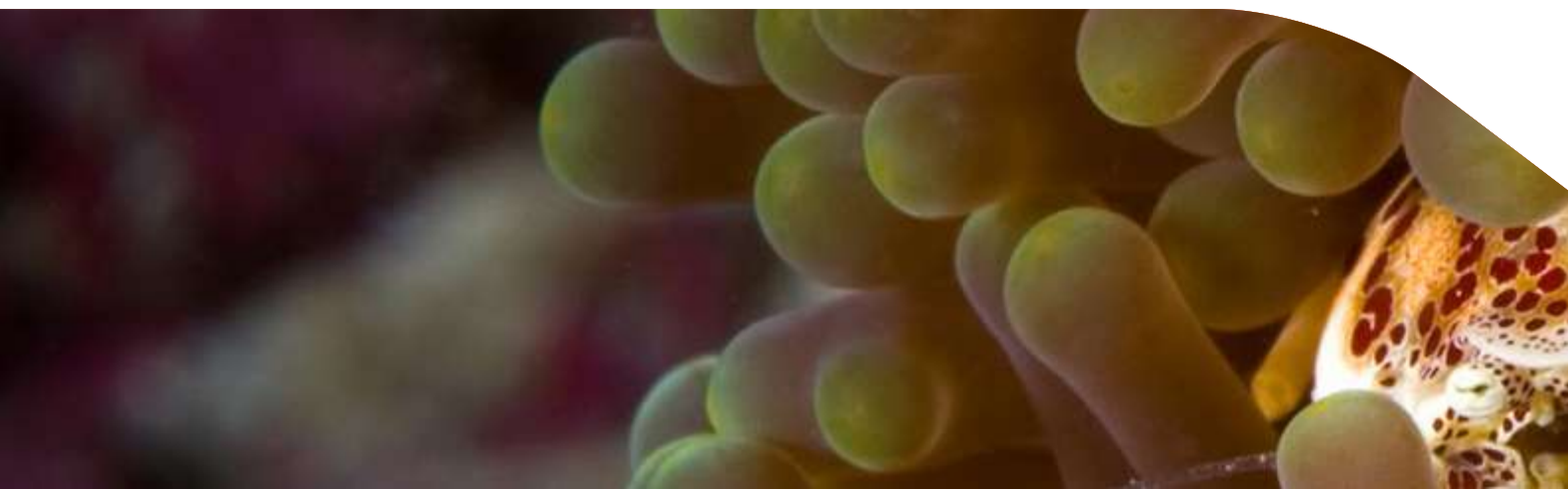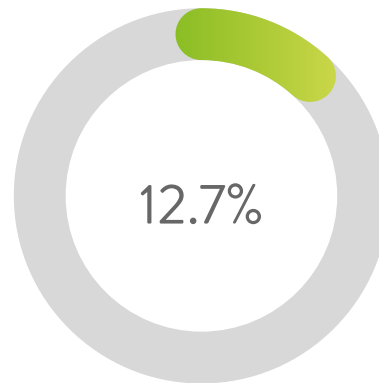
## POLICY AIMS/CONTEXT OF THE PILOT

What is the impact of tourism industries on the economic, social and environment concerns of the country particularly on the output/revenue, employment and most importantly to the environment in terms of the tourists' energy use and water consumption and their emissions of CO_2?

PILOT FOCUSED ON:		PILOT FOCUSED ON THIS SPATIAL LEVEL:	
✔	Economic dimension	✔	National
✔	Social dimension, incl. culture & institutions		Subnational region
✔	Environmental dimension		Municipality or location

KEY DATA GENERATED

EVOLUTION OF WATER AND ENERGY CONSUMPTION OF INTERNAL TOURISM
INDEX (2012 =100)

Water consumption · Energy consumption
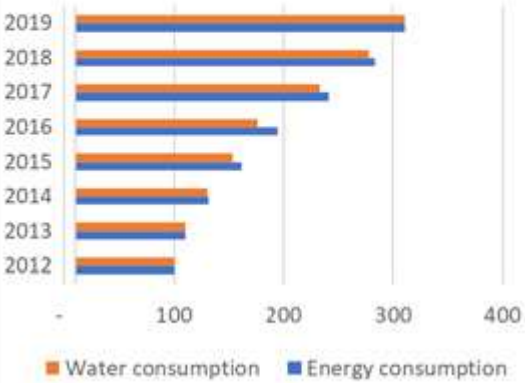
ENERGY AND WATER CONSUMPTION OF INTERNAL TOURISM, 2019
BY INDUSTRY AND INBOUND / DOMESTIC
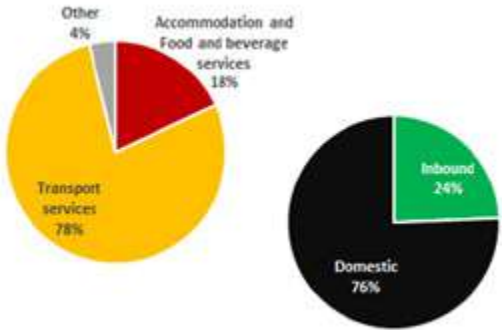
KEY FINDINGS

Total energy and water consumption of domestic tourism more than tripled between 2012 and 2019. Total energy consumption stood at 14,470 KTOE and 44,896 KTOE in 2012 and 2019 respectively, while total water consumption of internal tourism totaled 3,852 cu.m. in 2012 and 11,953 cu.m. in 2019 respectively.

Transport services represented about 78 per cent of water and energy consumption of domestic tourism in 2019, while accommodation and food and beverage services accounted for 18 per cent. Similarly, inbound tourism was responsible for 24 per cent of the water and energy consumption of internal tourism, while domestic tourism accounted for 76 per cent.

Employment in tourism industries in 2019 stood at 5.7 million individuals, accounting for 13.5 per cent of the total employment of the country. This share to total employment was higher than the 2018 figure of 13.0 per cent.

In 2019, the contribution of tourism to the Gross Domestic Product was 12.7 per cent, an increase from the 12.3 per cent the previous year.

POLICY ACTION

The Philippines efforts in measuring the sustainability of tourism (MST) is in line with the 2017-2022 Philippine Development Plan towards maintaining the country's clean and healthy environment to support the goal of accelerated economic growth within the Plan Period. This is likewise aligned with the Philippine commitment to the 2030 Sustainable Development Agenda, the Manila Declaration on the Adoption of Measuring Sustainable Tourism, and to the International Sustainable Tourism for Development.

The key findings on MST were presented by the Philippine Statistics Authority in several meetings, fora, convention as follows:

1) Interagency Committee on Tourism Statistics with representatives coming from member agencies namely: the Department of Tourism, Bangko Sentral Ng Pilipinas, National Economic and Development Authority, Philippine Tourism Congress, Department of Interior and Local Government.

2) 14th National Convention on Statistics held in October 2019 at Crowne Plaza Hotel, Philippines.

3) Meetings of the UNWTO Committee on Tourism Statistics and Tourism Satellite Accounts which were conducted in 2018 and 2019.

4) Executive Management Committee of the National Economic and Development Authority (NEDA).

5) Training –Workshops on Tourism Satellite Accounts and MST conducted in 2018 and 2019 in Mimaropa Region (Palawan) and Cordillera Autonomous Region (Baguio) with Regional Directors and regional staff of the Philippine Statistics Authority as participants including other stakeholders of the local government

Future work will be undertaken on the improvement of existing indicators for energy and water consumption and for CO2 emissions. We will also explore ways to measure levels of solid waste from tourism activities.

ORGANIZATION

Year(s) the pilot study was carried out in: 4 (2017-2020)
Lead institution(s): Philippine Statistics Authority
Other institution(s) involved: Department of Tourism

Focal point: Assistant National Statistician Ms. Vivian R. Ilarina & Division Chief Mr. Gerald Junne Clarino

SAMOA

SAMOA: AN EXTENDED TSA PILOT EXERCISE

The pilot served to quantify the impact of tourism on the economy and how this translates into traditional TSA indicators, as well how it affects as electricity and water consumption.

Tourism is one of the main economic sectors in Samoa, representing a 12.5 per cent direct contribution to GDP and over 21 per cent of total employment. The sector also accounts for 11.5 per cent of the water resources used by the whole economy, and about 10 per cent of electricity.
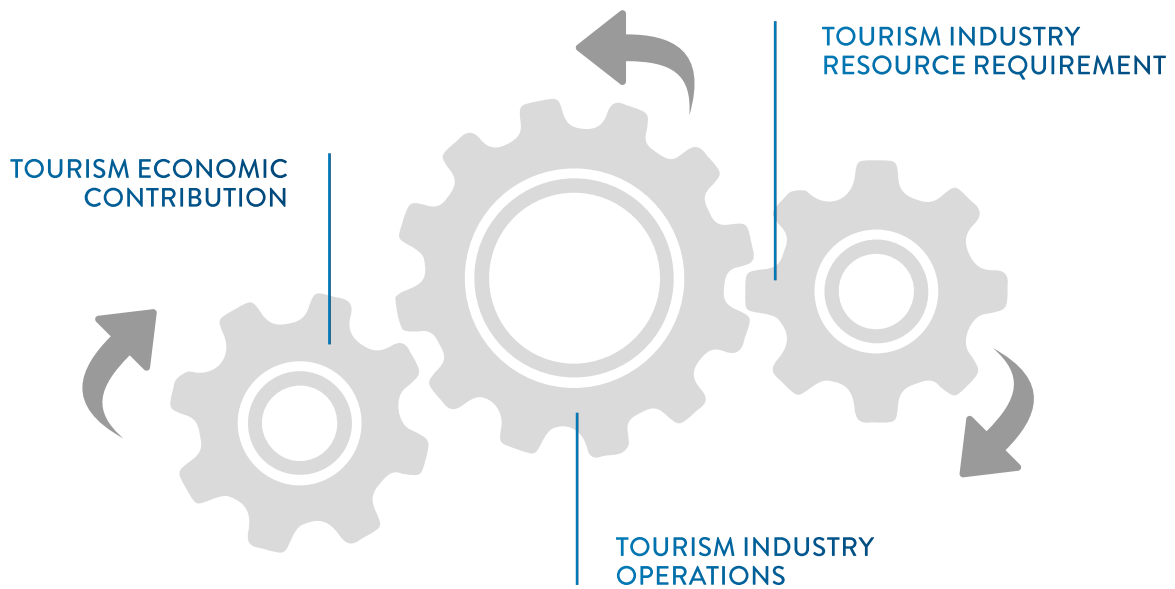
TOURISM INDUSTRY RESOURCE REQUIREMENT

TOURISM ECONOMIC CONTRIBUTION

TOURISM INDUSTRY OPERATIONS

POLICY AIMS/CONTEXT OF THE PILOT

What are the demands and pressures that tourism development processes impose upon limited natural resources, and how these pressures can be measured and managed in the interest of sustainability?

The aim of the pilot was to provide National Planners, Tourism Industry Regulators and Actors robust responses to the following policy questions namely:

- What is the contribution of the Tourism Industry to the Economy?

- What are the current resource requirements for the Tourism industry? and

- What is the optimum sustainable level of tourism given potential available natural and man-built resources?

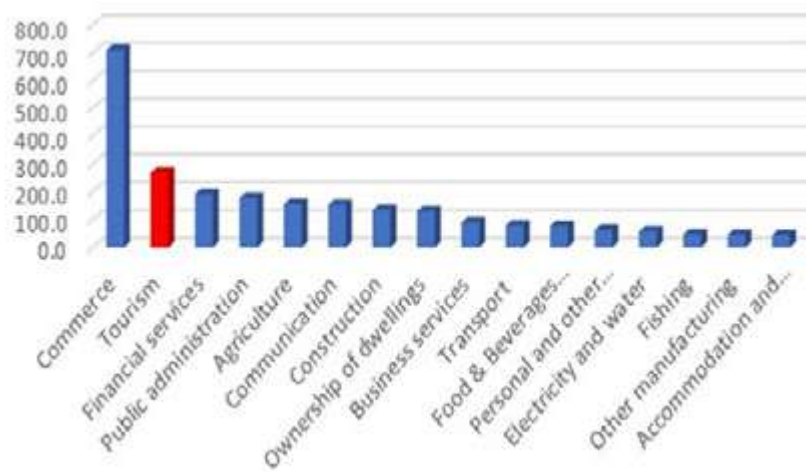| PILOT FOCUSED ON:	PILOT FOCUSED ON THIS SPATIAL LEVEL:
✔ Economic dimension	✔ National
Social dimension, incl. culture & institutions	Subnational region
✔ Environmental dimension	Municipality or location

KEY DATA GENERATED

TOURISM INDUSTRY RANK GDP AT CURRENT PRICES (IN MILLION OF DATA)

DIRECT TOURISM IMPACT 2016/2017 FY ON REOURCES

Resources Utilitation	Key Indicators
Total Value of Water (SAT Million)	$ 18.52
Value of Water Used by Tourism Industry (SAT Million)	$ 2.13
Percentage of Water Costs Used by Tourism	18.52 %
Total Electricity Sales in 2018 (MWh)	138,423.5
Total Electricity Sales to Tourism Industry in 2018 (MWh)	13,921.4
Percentage of Electricity Sales in Tourism in 2018	10.1 %

KEY FINDINGS

The Main findings are as follow:

- Direct Tourism Contribution to GDP was 12.5 per cent.

- However, 21.5 per cent of employment was directly related to the Tourism Industry.

- Income from tourism is the second largest Foreign Exchange Earner after remittances.

- Tourism uses 11.5 per cent of water resources.

- Tourism accounts for 10 per cent of electricity consumption.

POLICY ACTION

The Pilot Tourism Satellite Accounts served 2 main purposes.

1. Presented tentative results for policymakers on Tourism Industry Economic Contribution and Resource Utilization.

2. Outlined detailed methodology using the System of Environment-Economic Accounting (SEEA) Framework on how the TSA results could be:

(i) Refined and updated.

(ii) Expanded to include other key accounts such as Waste Accounts and

(iii) Using the same methodology to focus on spatial planning especially for areas with high tourism density.

ORGANIZATION

Year(s) the pilot study was carried out in: 2018 for Economic Contribution and in 2016/2017 for Resource Utilization.
Lead institution(s): ESCAP,

Other institution(s) involved: The Samoa Ministry of Natural Resources and Environment and Samoa Tourism Authority.
Focal point: WizConsult

SAUDI ARABIA

SAUDI ARABIA:
ESTIMATING THE ENVIRONM
ENTAL EFFECTS OF TOURISM

Considering the recognized pressures of tourism on the natural environment, it is important to quantify and understand these impacts. The Ministry of Tourism has adopted an analytical method based on the TSA approach in order to provide estimates on the environmental effects of tourism activity in the Kingdom of Saudi Arabia. This method enables us to partially examine some environmental consequences of tourism, e.g. energy and water consumption and CO2 emissions attributed to tourism demand.

THE KSA INITIATIVE ON MEASURING ENVIRONMENTAL PRESSURES OF TOURISM

Main question
How can a country estimate environmental effects of tourism, based on the TSA, when it does not have environmental accounts?

Key measures
- Average water use (L/person/night).
- Average fuel (diesel) use (L/person/night).
- Average electricity use (kWh/person/night).
- CO_2 emissions attributed to tourism demand.

Pilot
- Environmental Measures For Tourism Commercial Accommodations Services.
- Environmental Measures For Domestic Tourism Land Transportation

Key Indicators
- Inbound & Domestic Tourist Consumption of Fuel, Electricity and Water
- Domestic Tourist Consumption of Fuel in Land Transportation
- CO_2 emissions

Policy Implications
- Examining the potential environmental pressures and financial costs of attracting new tourist.
- Adopting analytical alternative methods in case of the absence of SEEA.
- Starting point for developing MST indicators

POLICY AIMS/CONTEXT OF THE PILOT

What are the demands and pressures that tourism development processes impose upon limited natural resources, and how these pressures can be measured and managed in the interest of sustainability?

PILOT FOCUSED ON:

	Economic dimension
	Social dimension, incl. culture & institutions
✔	Environmental dimension

PILOT FOCUSED ON THIS SPATIAL LEVEL:

✔	National
	Subnational region
	Municipality or location

KEY DATA GENERATED

ENERGY & WATER CONSUMPTION OF TOURISTS IN COMMERCIAL ACCOMMODATION SERVICES IN KSA, 2016

Items	Inbound Tourism Consumption	Domestic Tourism Consumption	Total Tourism Consumption
Fuel	151.4 million liter	173.4 million liter	324.8 million liter
Electricity	1,156 million Kwh	1,324 million Kwh	2,480 million Kwh
Water	11.0 million m3	12.6 million m3	23.6 million m3

ESTIMATED CO2 EMISSIONS, 2016
UNIT: TON CO2

|	
COMMERCIAL ACCOMMODATION SERVICES	83,817
DOMESTIC TOURISM LAND TRANSPORT	259,348
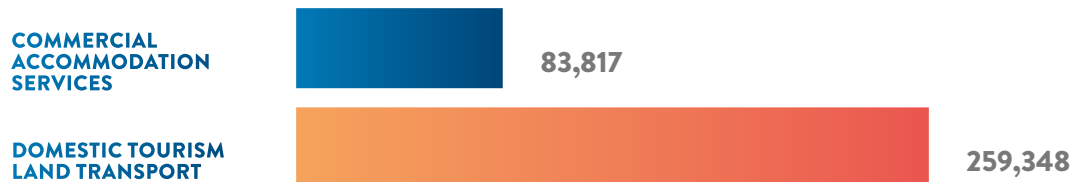
KEY FINDINGS

- 86% of total domestic tourists travel by private cars inside the KSA. Domestic tourists travelled a collective approximately 14-billion-kilometers, requiring 1,005 million liters of fuel.

- CO2 emissions produced by the combustion 1,005 million liters of fuel consumed during domestic trips is estimated at 259,348-ton CO2.

- 263 million guest nights in commercial accommodation resulted in the consumption of 324.8 million liters of fuel, 2,480 million Kwh of electricity, and 23.6 million m3 of water.

- Fuel consumption by guests in commercial accommodation produced 83,817 tons of CO2.

For policy context, this means that each additional 1 million guests at hotels and similar would require a further 7 million liters of fuel, 53 million Kwh of electricity, and 500 Km3 of water.
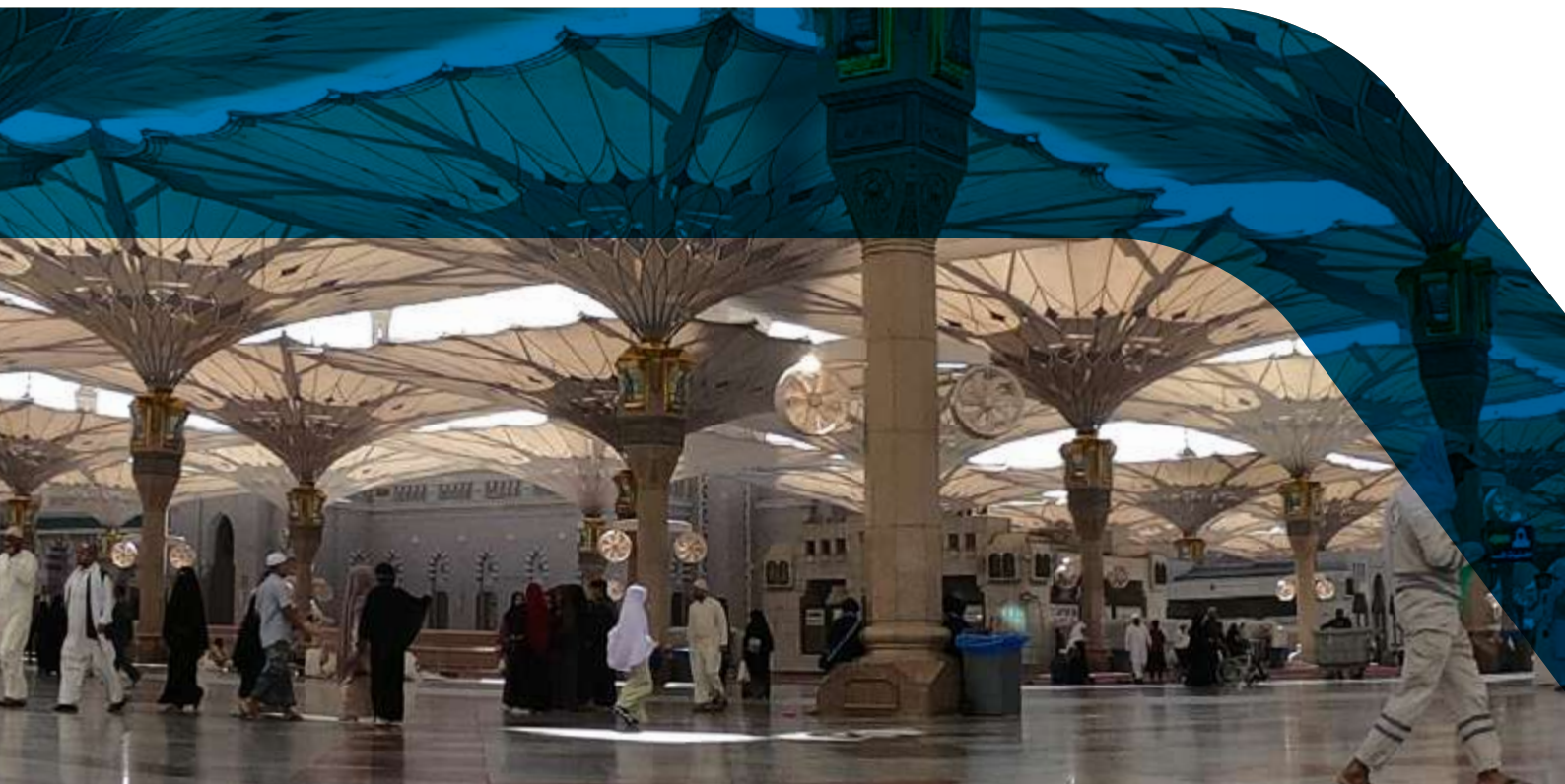
POLICY ACTION

A report of the findings of the pilot was presented in a meeting with key stakeholders (2018).

This perspective and that of stakeholders will be a key input for defining a strategy, identifying the data assets needed, and the analytical use of related cases.

The next step that the Ministry of Tourism is focusing on is to build multi-stakeholder partnerships to develop a national MST statistical framework investigating the sustainability of tourism in a comprehensive way that covers the economic, social, environmental aspects of tourism.

ORGANIZATION

Year(s) the pilot study was carried out in: 2017
Lead institution(s): Ministry of Tourism

LINKS TO MORE INFORMATION

- https://mt.gov.sa/

Measuring
the Sustainability
of Tourism

UNWTO
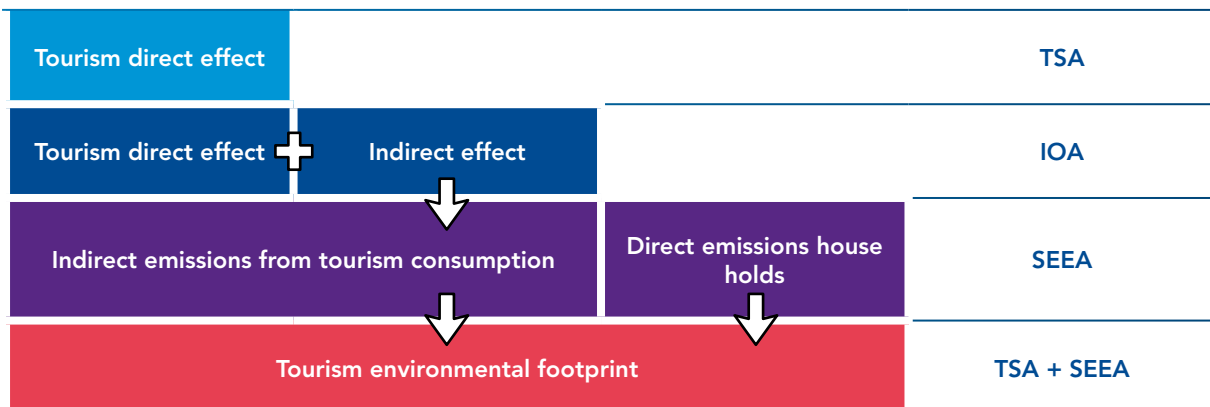World Tourism Organization

SWEDEN

SWEDEN:
A METHOD FOR ESTIMATING GHG EMISSIONS IN TOURISM

The pilot study carried out in Sweden in 2018 aimed at increasing knowledge of the environmental impact the tourism sector. The study uses the TSA-SEEA linking possibilities but is built on a more sophisticated method by using an input-output analysis. The method needs to be further developed for more accurate data on tourism's environmental footprint.

METHOD DEVELOPMENT PROJECT - LINKING TSA WITH SEEA

Tourism direct effect		TSA
Tourism direct effect ✚ Indirect effect		IOA
Indirect emissions from tourism consumption	Direct emissions house holds	SEEA
Tourism environmental footprint		TSA + SEEA

POLICY AIMS/CONTEXT OF THE PILOT

Tourism is measured in a national Tourism Satellite Account, TSA, in the National Accounts. The Environmental Accounts, SEEA, also constitute a satellite system to the National Accounts that look at the environmental impact of the economy. Based on the growing need to increase knowledge of the environmental impact of tourism, and to find the right policy measures to support sustainable tourism development, there is a major international interest in linking the Tourism Satellite Account to Environmental Accounts. Accurate data on the tourism sector is crucial for a fair and objective discussion on sustainable tourism in relation to other sectors of the economy.

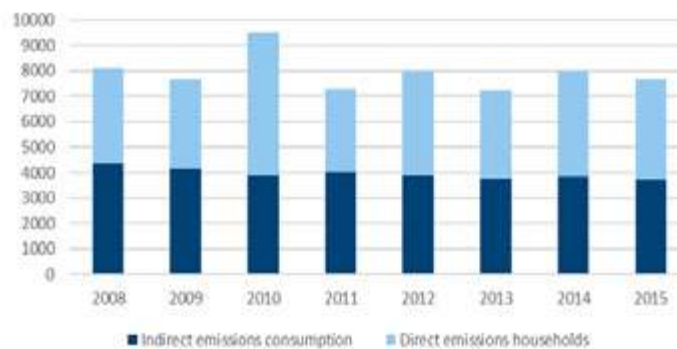| PILOT FOCUSED ON:		PILOT FOCUSED ON THIS SPATIAL LEVEL:	
✔	Economic dimension	✔	National
	Social dimension, incl. culture & institutions		Subnational region
✔	Environmental dimension		Municipality or location

KEY DATA GENERATED

K-TONNES GREENHOUSE GAS (CO2E) EMISSIONS FROM TOURISM CONSUMPTION AND HOUSEHOLD DIRECT EMISSIONS (EXPLORATORY DATA)

GREENHOUSE GAS (CO2E) EMISSION FROM TOURISM CONSUMPTION BY PRODUCT GROUP (EXPLORATORY DATA)
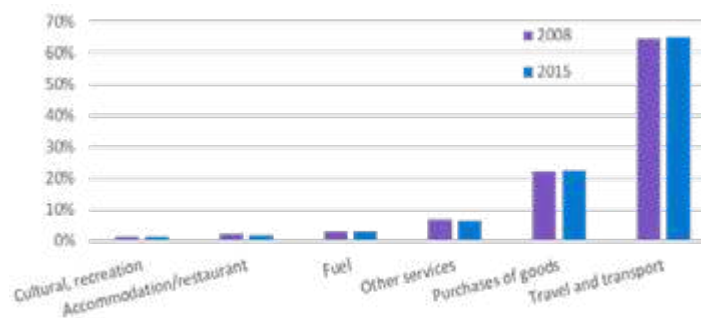
KEY FINDINGS

The study uses the TSA-SEEA linking possibilities but is built on a more sophisticated method by using input-output analysis. The indirect effects on tourism, by using input-output analysis, increases the tourism sector in Sweden, in terms of tourism employment, by 50 per cent as compared to the results of the TSA.

Adding environmental factors, in this case greenhouse gas emissions, to the IOA, makes it possible to estimate the environmental impact from indirect emissions from consumption and direct emissions from households. The study shows that the total emissions of CO2, both direct from households and indirect from tourist final use, have decreased during the years covered in the study. Divided by product groups, travel is the primary contributor to greenhouse gas emissions, representing over 60 per cent of total GHG emissions of the sector.

The method needs to be improved for more accurate data on tourism's total environmental impact. The study does not, for example, include total emissions of CO2 from international flights since the method used in this study is based on the "first stop" principle. Also, indirect emissions from consumption of imported goods are calculated on the assumption "as if produced in Sweden".

POLICY ACTION

The data in this study is the result of a method development project, with exploratory data output, therefore it has only been presented to policy makers as an example of data that is possible to generate. No policy measures have been taken based on the result. Discussions on how to proceed with the development work are currently being held.

ORGANIZATION

Year(s) the pilot study was carried out in: 2018
Lead institution(s): Statistics Sweden, Swedish Agency for Economic and Regional Growth

Focal points: Sofi Sjöberg
[sofi.sjoberg@tillvaxtverket.se]
Susanna Roth, [susanna.roth@scb.se]

LINKS TO MORE INFORMATION

https://www.scb.se/en/finding-statistics/statistics-by-subject-area/environment/environmental-accounts-and-sustainable-development/system-of-environmental-and-economic-accounts/pong/publications/the-tourism-satellite-account-and-the-environment--method-development2/

THAILAND

THAILAND: A REGIONAL PILOT THAT RESULTED IN A NATIONAL TSA-SEEA SYSTEM OF ACCOUNTS

The pilot exercise that explored the compilation of accounts for energy, water, solid waste and GHG emissions in tourism in the region of the Andaman Tourism Development Cluster resulted in an improved national system of environmental accounts for tourism that allows for the estimation of "Tourism Green DGP". Since the first set of compiled accounts for the year 2017 are yet to be published, preliminary data obtained in the context of the pilot study is shared and explored in this document.

THE ANDAMAN TOURISM DEVELOPMENT CLUSTER, THAILAND
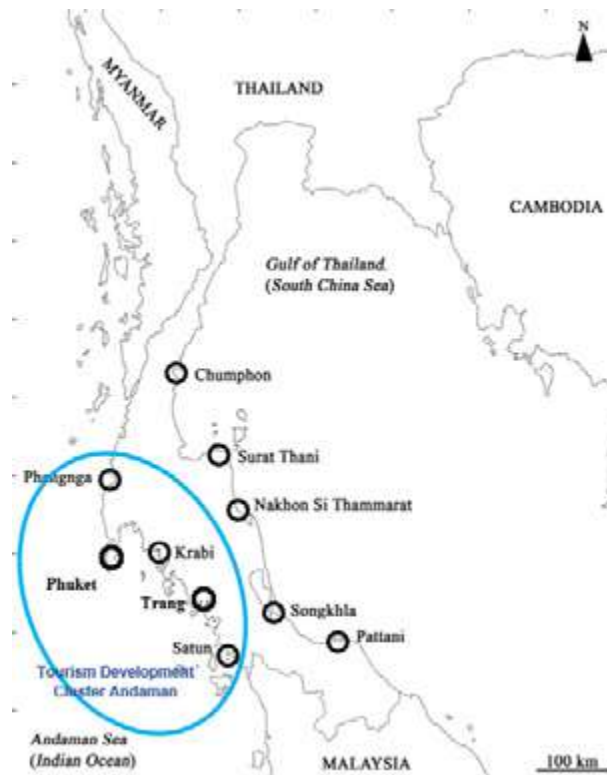
POLICY AIMS/CONTEXT OF THE PILOT

Using the methodology proposed by UNWTO in linking the TSA and SEEA, the main objectives of the pilot at the regional level were to:

1. Suggest methodologies for producing TSA-SEEA for water, energy, solid waste and GHG emissions both in physical and monetary terms;

2. Produce test TSA-SEEA accounts for water, energy and solid waste; and,

3. Recommend and test the calculation methods for environmentally adjusted TSA.

This exercise resulted in a system that links TSA and SEEA accounts to compile tourism water, energy, solid waste and GHG emissions accounts both in physical and monetary terms, and estimate an adjusted tourism GDP that takes into account the cost of natural resources and environment depletion (Tourism Green GDP).

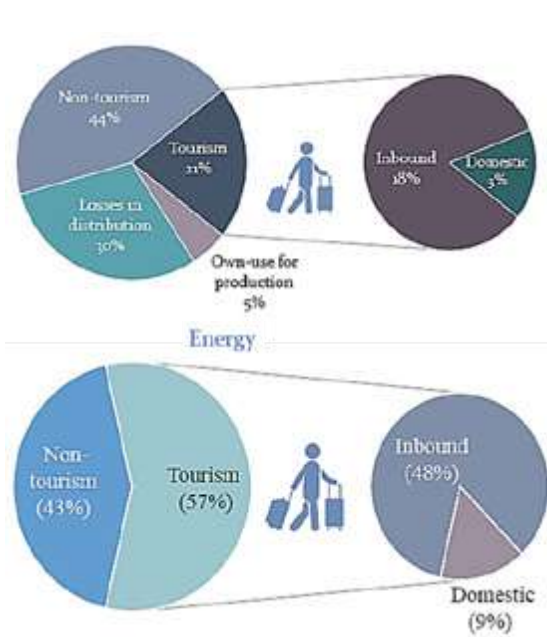| PILOT FOCUSED ON:	PILOT FOCUSED ON THIS SPATIAL LEVEL:
✔ Economic dimension	✔ National
Social dimension, incl. culture & institutions	✔ Subnational region
✔ Environmental dimension	Municipality or location

KEY DATA GENERATED

RESULTS FROM THE PILOT IN THE ANDAMAN CLUSTER: WATER AND ENERGY USE

RESULTS FROM THE PILOT IN THE ANDAMAN CLUSTER: SOLID WASTE AND GHGH EMISSIONS
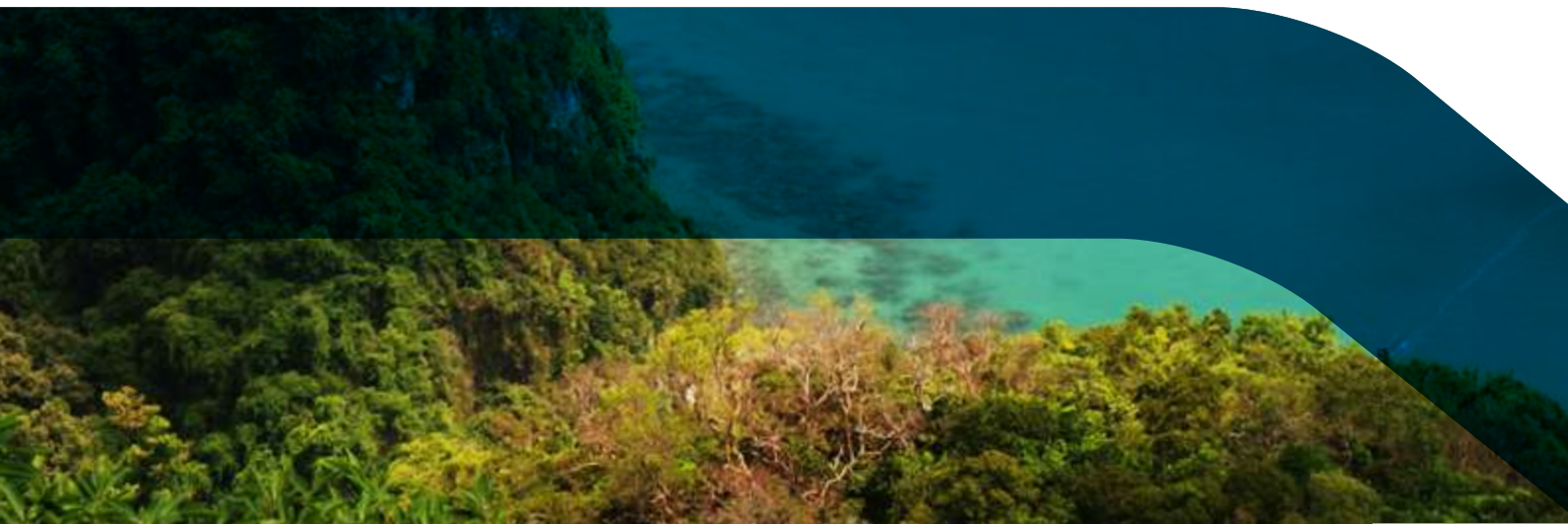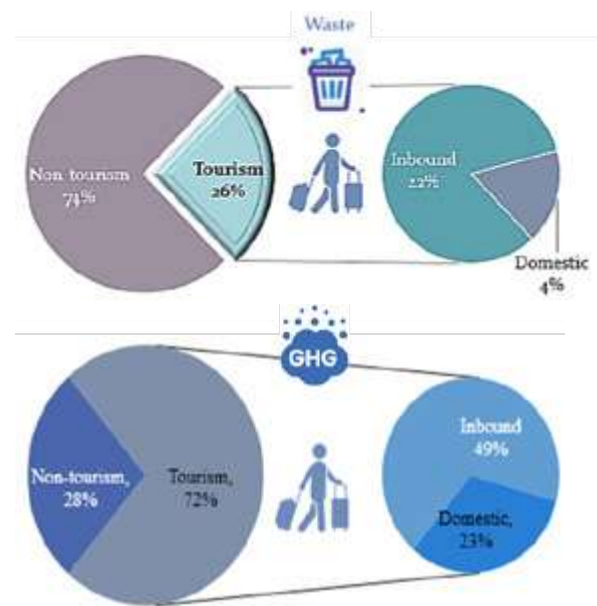
KEY FINDINGS

It is important to note that the data presented in the Key Data Generated section are preliminary and not official, as they were obtained during the regional pilot in the Andaman Tourism Development Cluster. However, these data can provide insights into the type of information that can be obtained through water, energy, solid waste and GHG emissions accounts.

At the national level, results for 2017 will be published soon. Preliminary Tourism Water, Energy, GHG and Solid Waste accounts for Thailand have been compiled for 2017. In addition, it has been possible to compute the expenditure of government on natural resources and environment activities contributing to tourism. "Tourism green GDP" has also been estimated. Volume and value of natural coastal resources and environment for tourism have been compiled.

POLICY ACTION

At the moment, all findings have been reported to the relevant authorities. As soon as the results are approved by the Executive, the report of Thailand TSA-SEEA will be released to the public. This initiative is expected to provide crucial evidence for policy makers on sustainable tourism on an yearly basis, at both the national and subnational levels.

ORGANIZATION

Year(s) the pilot study was carried out in: 2017
Lead institution(s): Office of permanent secretary general, Ministry of Sports and Tourism, Government ofThailand.
Other institution(s) involved: -
Focal point: Ms. Katesaraporn Wimonrat

LINKS TO MORE INFORMATION

- https://www.mots.go.th/download/article/article_20190712180357.pdf (released in Thai)
- Information on the regional pilot: https://www.unescap.org/sites/default/files/1.3.A.4_Thailand_GOAP_12-15Nov20199.pdf

UNWTO
World Tourism Organization

VIETNAM

VIETNAM: **LAND-BASED POLLUTION IN THE QUANG NINH PROVINCE**

The study has estimated land-based pollution from different sectors (i.e. urban centers, industry, rice production, coal mining and tourism) in Quang Ninh Province. The study found that tourism provides a significant contribution GRDP but also accounts for high levels of pollution in the province. A strategy is required to ensure tourism continues to contribute to economic development in the province but in a sustainable way.
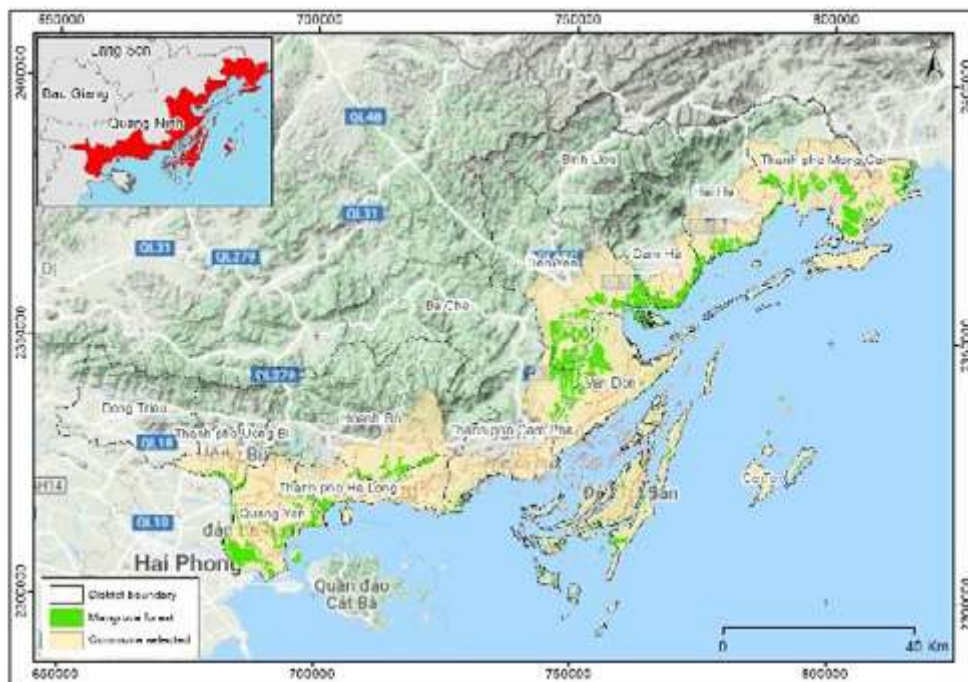
POLICY AIMS/CONTEXT OF THE PILOT

Though the study didn't just focus on tourism activities, it did help answer several very important questions regarding the sector. What is the contribution of tourism to the economy of the Quang Ninh province? What is the contribution of tourism to land-based pollution, and how does this compare with other activities?

PILOT FOCUSED ON:		PILOT FOCUSED ON THIS SPATIAL LEVEL:	
✔	Economic dimension		National
	Social dimension, incl. culture & institutions	✔	Subnational region
✔	Environmental dimension		Municipality or location

KEY DATA GENERATED

Pollution Source	Wastewater (m3/year)	Biochemical Oxygen Demand, BOD (tons/year)
Local Population	21,285,194	18,224
Industry (exclude coal mine)	7,396,725	196
Rice	6,785,040	68
Coal mine	21,827,000	751
Tourism	1,127,183	877
Total	**58,347,175**	**20,116**

EFFECT OF TOURISM ON QUANG NINH GRDP IN 2018

	Total contribution	Direct contribution	Indirect contribution	GRDP estimate in 2018
Tourism Value Added (biollion Dong	14,868	8,964	5,904	
Product taxes (Billion dong)	1,811	1,092	719	
Tourism Gross Regional Domestic Product (billion Dong)	16,679	10,055	6,624	152,250
Share of GRDP (%)	10,96%	6,61%	4,35 %	

KEY FINDINGS

- Tourism in the province contributes about 11 per cent of total regional GDP in Quang Ninh Province, with the direct contribution at 6.61 per cent and the indirect contribution is 4.25 per cent.

- Tourism of Ha Long Bay, a UNESCO World Heritage Site, is a key growth sector in Quang Ninh's economy today. Total tourist arrivals of Ha Long Bay have increased from 1.78 million in 2007 to 12 million in 2019. The wastewater from the tourist boats is one of the pollution sources of Ha Long Bay. The pollution load unit from these tourist boats is corresponding to 30% of the pollution load from the local population.

- While tourism-related activities generate a much smaller amount of wastewater than other activities such as coal mining and rice production, they show the highest impact on biochemical oxygen demands of the water among the three sectors, affecting water quality in the province.

POLICY ACTION

- With the aim that Quang Ninh tourism will grow sustainably in the direction of industrialization and modernization, to make tourism the prominent economic sector capable of providing a higher and higher proportion of GRDP, the province should develop a sustainable tourism strategy

- Calculation of pollution loads from different sources, including tourism will be used by provincial local authorities to plan the environmental infrastructure required to support the town, the city and the key tourism attractions

ORGANIZATION

Year(s) the pilot study was carried out in: 2018
Lead institution(s): Institution of Strategy and Policy on natural resources and environment (ISPONRE)
Other institution(s) involved:
Focal point: Dr. Kim Thi Thuy Ngoc, Head of Division of Science and International Cooperation

Measuring
the Sustainability
of Tourism

UNWTO
World Tourism Organization